

ROUTING SLIP

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HRT-2

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Minutes of the Meeting Held with the Washington Customer
at Washington on November 14, 1961

Those present were:

Customer: Nick G.

Ray G.
Hil T.

"NOTE THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE LAWS, ACT 25 JUNE 1948 (PLIN 1 LAW 724 - 80TH CONG; 18 U.S.C. 793 AND 794; 52 STAT. 683). THE TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW"

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Information on the cold temperature capacity of mercury batteries for use in HRT-2 beacon transmitters was given to the customer. While the life of the presently used cells appears to be extremely short when tested without any housing in a laboratory cold box, this type of test does not simulate actual operating conditions. This is because the bare cell in the cold box is cooled to the actual ambient by the circulating air while the battery in the unit is insulated and protected from ambient conditions, and the heat produced by internal heating will keep the battery at a higher than ambient temperature. In the case of the RM-42R cell now being used, the bare cell had a life of 6 min. to a .6 volt end point with a .5 ohm load when the cold box temperature was 32°F. When the battery composed of RM-42 cells is tested inside the beacon housing with the beacon as a load the battery had a life of three hours at 32°F when the transmitter drew 1.7 amps at 15 volts from the battery, corresponding to a per cell load of .59 ohms.

Batteries not soaked

[] is investigating the possibility of having a battery pack made up of special cold temperature cells. Since these cells have a different form factor than the RM-42 cells the resulting pack may have a different shape than does the presently used battery. Either a 12 cell or 18 cell battery will be used depending on the internal impedance of the new cells. If a low enough impedance is obtained at low temperatures only 12 cells will be needed to provide the required terminal voltage when the battery is providing the proper load current. A 12 cell battery will fit into the present battery compartment in the HRT-2 beacon. The cost of a new battery pack would be approximately \$50 for a 12 cell pack and approximately \$65 for a 18 cell pack. The number of cells will have to be determined after sample cells are received and tested []

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The customer will decide whether or not a new battery pack should be provided for the beacons. Regardless of the decision, the remaining 18 units to be delivered on T. O. 28 will not be revised to permit use of a larger battery pack. [] will provide the customer with data comparing the presently used battery and the new cold temperature packs using data from both Mallory and tests conducted at []

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The customer requested that a crystal hold-down clamp be used even though the socket provides a great amount of tension on the pins. Another request was to include a spare crystal in each transmitter. This crystal will also be in a socket having a hold-down clamp. For the 160 units []

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being built on T. O. 32 the same frequencies will be used as are being used on the 18 units to be delivered on T. O. 28. These frequencies are: 1,620 1,650 1,680 1,725 and 1,750 kilocycles. There will be 32 units on each frequency. The customer requested that the spare crystal in each unit be at least two channels removed in frequency from the crystal in the oscillator socket.

A discussion was held regarding the customer's request for a proposal to have [] prepare manufacturing drawings on T. O. 28 in place of the engineering drawings that [] originally proposed to provide. The discussion was concerned with the definition of manufacturing drawings and the possible delivery date for drawings. It was decided to define the needed drawings as follows.

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1. Parts List

The parts list would be the conventional information supplied with engineering drawings indicating all manufacturers, manufacturers' part numbers, tolerances and other information required to order the standard cataloged items used in the equipment.

2. Engineering Drawings

Engineering drawings will show the construction, material and finishes of all items unique to the equipment. This also includes drawings showing modifications to standard items.

3. Assembly Photographs

The assembly photographs indicate how components on the parts lists and unique items are joined to make subassemblies. Other photographs indicate how subassemblies are joined to make assemblies. The photos have "call-outs" on them showing the schematic reference symbol or part number. Enough photos will be made to show all views necessary to assemble the equipment.

4. Process Specifications

Process specifications are a step by step assembly procedure indicating how each component and unique item is assembled into a subassembly and how the subassemblies are assembled to form the main assembly.

5. Test Specifications

a. Components

The test specifications for components will give any information required above and beyond that indicated on the parts list to select components for special characteristics for use in the equipment.

b. Equipment

The test specifications for the equipment will list test procedures and operating specifications that will define the acceptable performance of completed equipment.

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These definitions of manufacturing drawings and information will suffice for the requirements on the HRT-2 beacon transmitters. The customer will be advised by phone on November 16 when this information can be provided.

The customer stated that the proposal for the production of 160 HRT-2 beacons did not indicate the quantities of manuals to be delivered with the units. It was agreed that one Test and Acceptance Manual and one Field Instruction Manual would be sent with each HRT-2 beacon and in addition 10 extra Field Instruction Manuals would be provided.

The customer asked what the proper method of wearing the back pack was. Various methods of attaching and adjusting the straps were demonstrated. It was decided that modifications to the carrying bag are needed to strengthen the pack and make it more convenient to wear. The manufacturer of the bag will be contacted and the necessary changes will be made in the bags to be supplied with the 160 beacons to be made on T. O. 32.

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